

Preparing Italian Airspace to accommodate U-SPACE and Innovative Air Mobility (IAM)

A Service Provider Perspective

26th of June 2023
Drones @ Panel MEC



D-flight

D-flight is a company of the **ENAV Group** and pursues the development and provision of services for the management of low-altitude air traffic for **Unmanned Aerial Systems (U-Space)**, and any related activities.

The company is owned by an industrial partner selected through a public tender procedure, consisting of **Leonardo S.p.A. and Telespazio S.p.A**



d-flight

ENAV, with **d-flight**, is at the forefront for the **construction of U-Space in Italy**, the airspace considered as the key element for the safe use of drones in every context and for everyone the types of missions.

D-Flight pursues the development and provision of U-Space services for the management of Unmanned Aerial Vehicles (UAV) traffic.

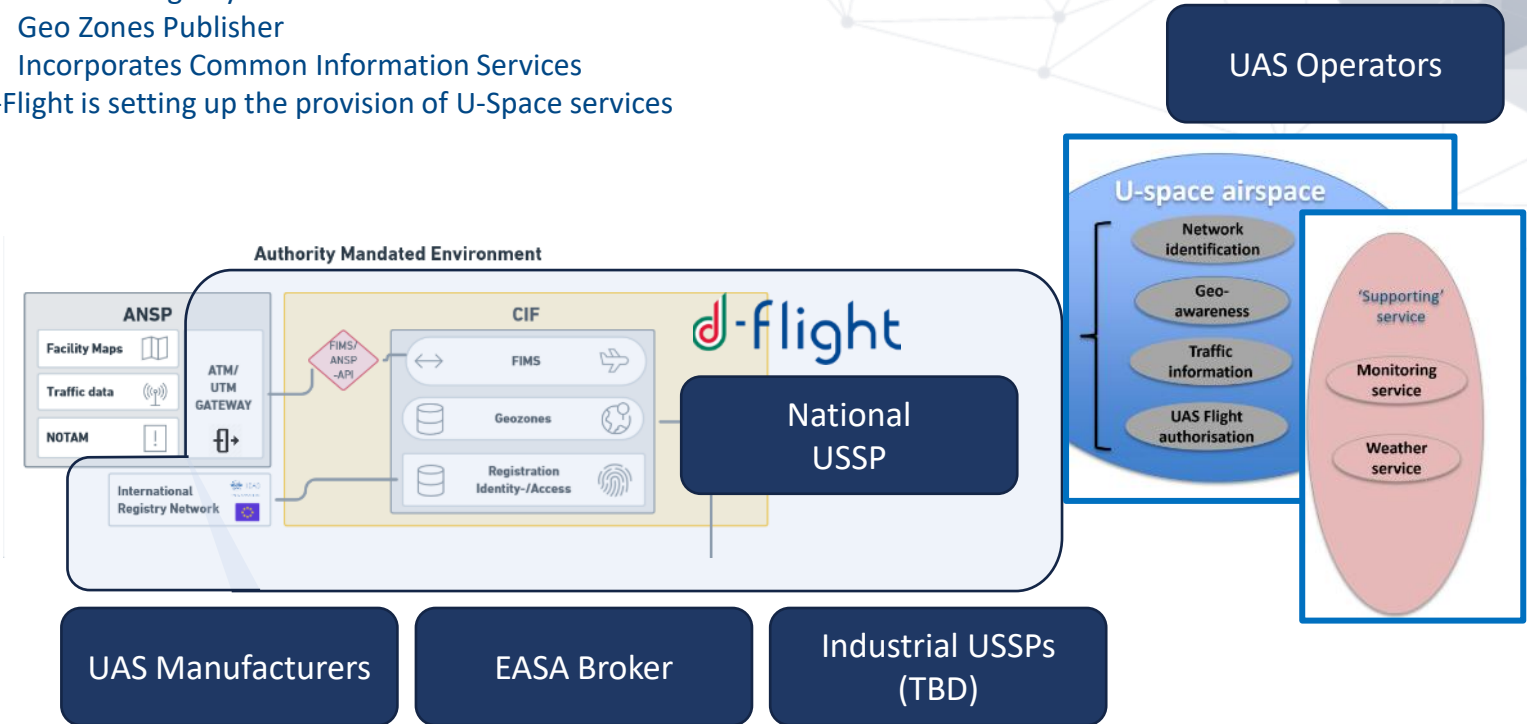
It aims to be recognized as the reference Italian U-Space Service Provider (USSP)

D-FLIGHT STATE OF THE ART

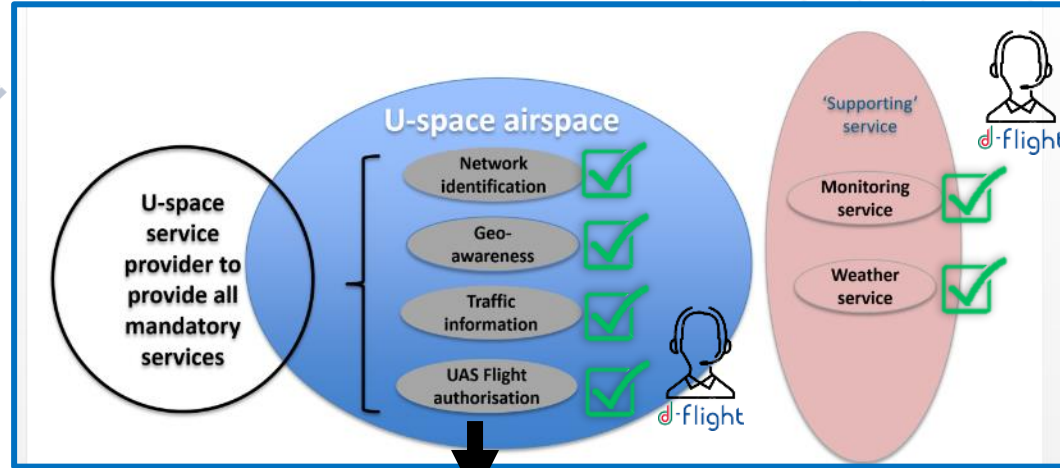
D-Flight currently supports Italian Member State to conform with 947/2019

- National Registry
- Geo Zones Publisher
- Incorporates Common Information Services

D-Flight is setting up the provision of U-Space services



D-FLIGHT for initial provision of basic U-Space services



Coordination Centre – READY

Networking e-identification:

- ICD compliant with standard (draft) EUROCAE ED-282
- for distribution - READY
- Track simulator - READY
- Mobile device Apps and Web-App Tracker - READY

Geoawareness:

- restrictions of airspace, GeoZones,
- temporary NFZ, NOTAMS, use of soil, population density

Supporting Services:

- Conformance Monitoring – Q2 2022
- Alerting – Q2 2022
- Recording & Playback – Q3 2022

Flight Authorisation:

- Drone Operation Area (DOA) per Open Cat./No ATM-09 - READY
- Drone Operation Plan (DOP) per Specific Cat. /ATM-09 - READY
- DOA/DOP Activation/Deactivation & Tracking - READY
- DOP submission for Approval/Authorisation – Q2 – 2022

Traffic Information:

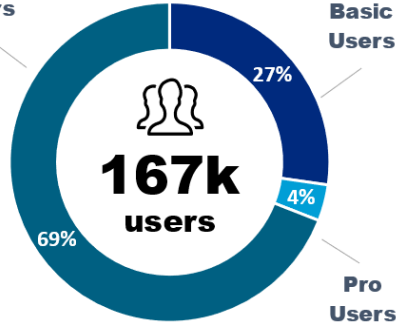
- Real time traffic picture – READY

Collaborative U-Space/ATM Interface

- Tactical Coordination between USSP and ATS



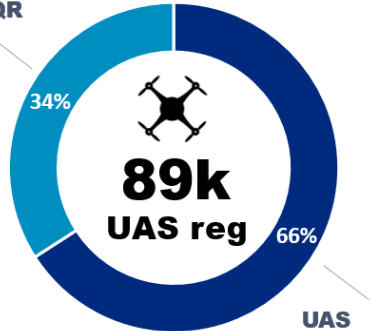
Other Users



Basic Users

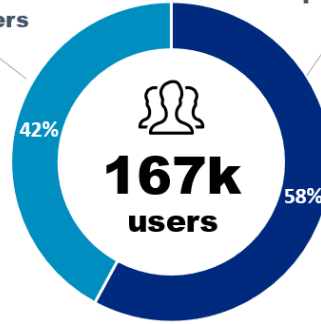
Pro Users

UAS No QR



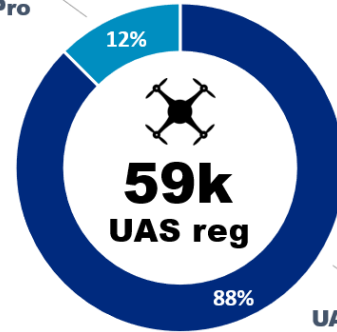
UAS with QR

Other Users



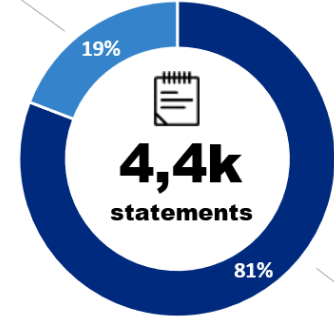
Operators

UAS QR Pro



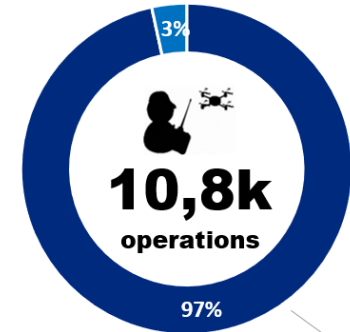
UAS QR Basic

Deleted



Active

BVLOS



VLOS

d-flight services

Mandatory Services



GEOAWARENESS

- UAS geographical areas relevant for U-space airspace – static and dynamic.
- Temporary restrictions applicable to the use of airspace within U-space airspace.
- Provides strategic and tactical information.
- It aims to support the operator in the strategic part of planning, identifying the requirements with which it must be compliant in order to operate.
- It is the basis for services such as FA, DOA or DOP.

FLIGHT AUTHORIZATION

DOA and DOP services allows with different capability level to enter a Drone Operation into the system to acquire flight authorization.

From the UAS operator point of view, the solution already carries out the two stages:

- ✓flight authorization (request and authorization) and
- ✓activation (request and activation).

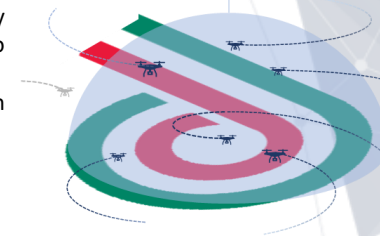
Support Desk for coordination with ATS entities:

- ✓ operation letter between ATSU-UASOp – agreed working methods and procedure for nominal/non nominal cases.

OTHER SERVICES

In order to ensure safe operation in a given U-space airspace, other U-space services, such as the weather information service, conformance monitoring

U-Space bubble



d-flight services

Mandatory Services

NETW. E-IDENTIFICATION

Allows continuous processing of remote UAS identification for the entire duration of the flight (registration number, UAS ID, UAS position and direction, remote pilot position, emergency status, timestamp).

- Hook-on device
- Plugin in GCS.
- Networked DRI - Antenna
- D-flight APP

TRAFFIC INFORMATION

Contains information on any additional visible air traffic that may be in the proximity of the UAS flight's intended location or route.

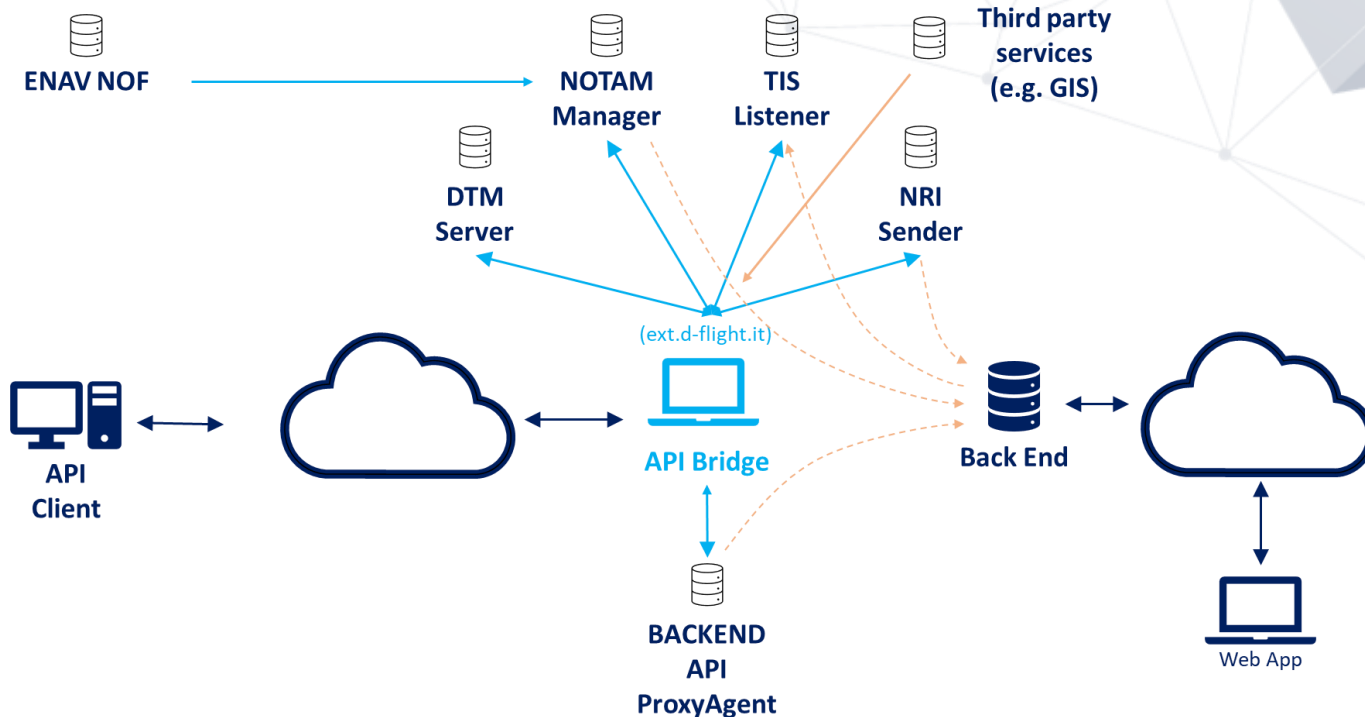
It includes the position, the time of the report, as well as the speed, route or direction and the state of emergency of the aircraft, if known.

- Cooperative unmanned traffic with NRIs.
- Manned ADS-B / FLARM traffic detected by commercial terrestrial networks (e.g. Flightaware).
- Traffic manned with NRI conspicuity (i.e. with active d-flight app - aviator profile).
- Non-cooperating local unmanned traffic
- Link with ATSU for manned traffic in ATZ / CTR.



d-flight Commercial Services: API Bridge

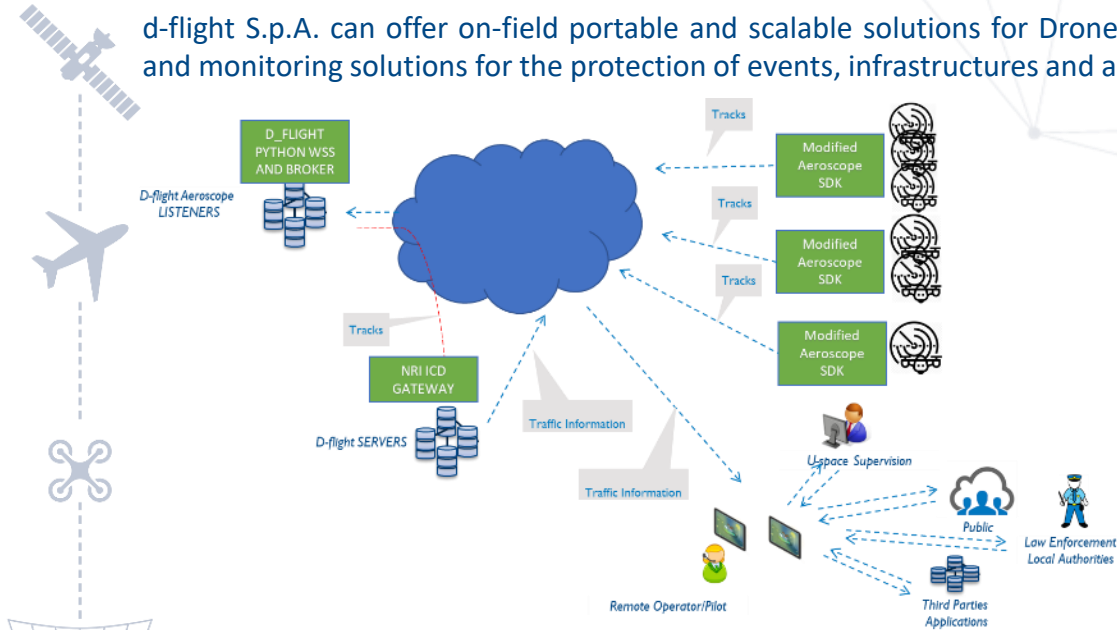
d-flight S.p.A. implemented a full API Toolkit for M2M integration with d-flight backend services. Please visit us for a live demo!!



d-flight Commercial Services: Drone Detection System (DDS)



d-flight S.p.A. can offer on-field portable and scalable solutions for Drone Detection and monitoring. Drone tracking and monitoring solutions for the protection of events, infrastructures and all airspace users.



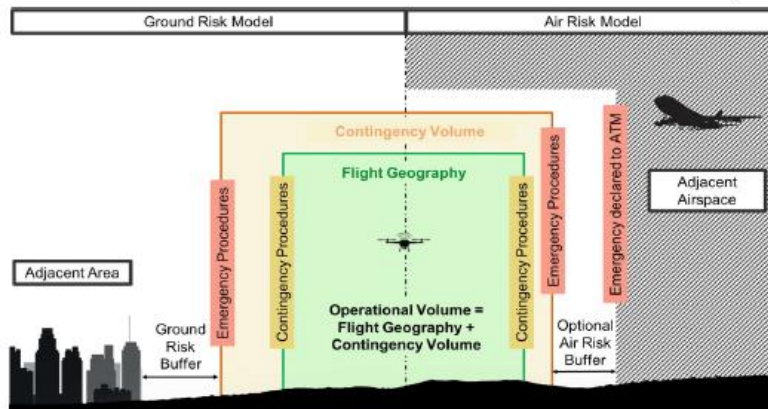
d-flight Commercial Services: SORA Risk Analysis

Risk analysis for UAS operations based on the SORA methodology provided by EASA regulations. Thanks to the numerous activities in which it is involved, d-Flight has acquired experience in the development of methodology, mitigation actions and compliance measures.


This service, therefore, allows a UAS operator (private or company) to operate in compliance with the safety requirements, guiding him in the preparation or arranging for him all the necessary documentation in order to obtain the required authorizations (operational authorization) including:

- analysis of the scenario and of the critical aspects of safety
- ConOps,
- comprehensive risk analysis,
- generation of the list of operational objectives,
- documents / forms / attachments necessary for the operator to operate (e.g. ATM-09A, self-declarations),
- Operational Manual (MO),
- Emergency Response Plan (ERP),
- operational tips,
- organization structure.


SAIL Determination				
Final GRC	Residual ARC			
	a	b	c	d
≤2	I	II	IV	VI
3	II	II	IV	VI
4	III	III	IV	VI
5	IV	IV	IV	VI
6	V	V	V	VI
7	VI	VI	VI	VI
>7	Category C operation			



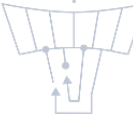
d-flight Commercial Services: UAS Geography



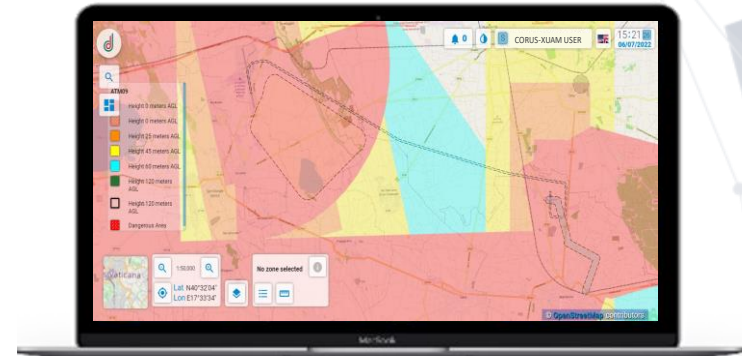
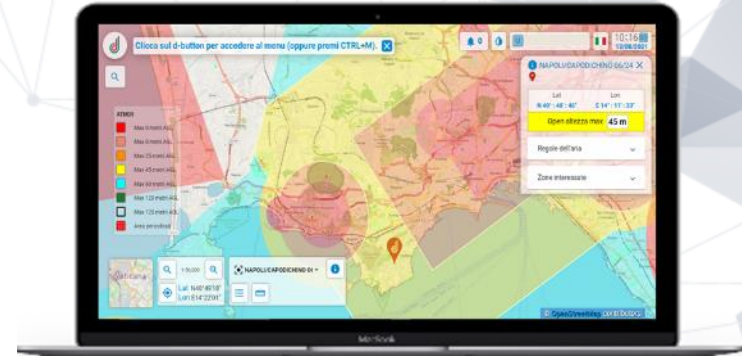
Provision of customized geographical layers and up-to-date data on UAS geographical areas. UAS Geographical Zones are those volumes of airspace where, on the basis of the risk assessment carried out by the competent authority, UAS operations are not permitted, unless after a flight authorization as well as, in some cases, of the release of the permit by the holder of airspace reserves officially designated and represented on the official aeronautical cartography (AIP). The criteria for the definition of the UAS Geographic Zones are detailed in the ENAC circular ATM-09A and subsequent amendments.



Helping to understand how to operate in geographical areas or request airspace reserves in accordance with ATM-09A are just some of the possibilities we offer to allow safe and efficient access to Very Low Level (VLL) airspace.



Thanks to the strength of the ENAV group, of which D-Flight is an integral part, we are able to preventively assess the airspace and the interactions between a UAS operation and manned traffic. To meet the needs of UAS operators and support them in identifying the overlap between ZGU and areas of interest, we are able to provide, upon request, UAS geography that is always updated in a standard format that can be easily managed by software systems.





THANKS FOR YOUR ATTENTION